

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : **11-145910**

(43)Date of publication of application : **28.05.1999**

(51)Int.Cl.

H04B 10/20

H04B 10/14

H04B 10/06

H04B 10/04

H04B 10/02

H04B 10/18

(21)Application number : **10-258653**

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(22)Date of filing : **11.09.1998**

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(30)Priority

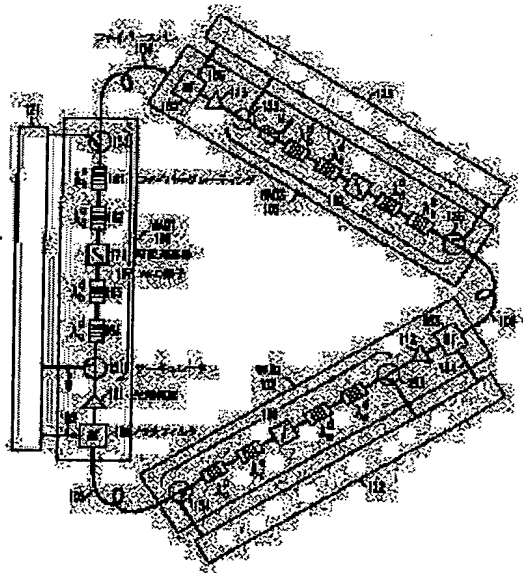
Priority number : **97 929926** Priority date : **15.09.1997** Priority country : **US**

## (54) WAVELENGTH DIVISION MULTIPLE RING NETWORK AND STABILIZATION METHOD THEREFOR

(57)Abstract:

PROBLEM TO BE SOLVED: To prevent laser oscillation of a WDM ring network by providing a node link and a protective means in a network, providing an optical fiber part and an access node site in the node link and making the protective means change the optical transmission characteristics of the inactive part of the transmission band of the network.

SOLUTION: Optical amplifiers 111-113 are erbium dope fiber amplifiers EDFA and supply optical gain for compensating loss in the node link. Thus, for instance, the amplifier 111 is arranged so as to compensate the loss in grating, a coupler and a fiber connector of an optical fiber span 104 and a WAD element 107. In normal installation, the node links, that are the respective ones of 101/104-103/106, are provided with the amplifier gain for canceling the loss by the fiber and WAD in the links.



## LEGAL STATUS

[Date of request for examination]

17.09.1999

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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CLAIMS

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[Claim(s)]

[Claim 1] Wavelength division multiplex-ized ring network characterized by providing the following. The node link where the network concerned was connected to the serial of (A) plurality in the wavelength division multiplex-ized ring network Here, each aforementioned node link is a safeguard to which the optical-transmission property of the aforementioned network is changed so that it may guarantee that have the access node site which adds or removes an optical-fiber segment and a single or multiple activity channel to the transmission band of the aforementioned network, and connect with the (B) aforementioned network, and the loop gain of the aforementioned network does not exceed loop loss of the aforementioned network in all wavelength.

[Claim 2] The network according to claim 1 characterized by the aforementioned safeguard having the aforementioned safeguard reflected in order to guarantee that the aforementioned network loop gain [ in / the intact portion concerned / for the light in the intact portion of the aforementioned transmission bands ] is smaller than the aforementioned network loop loss.

[Claim 3] The network according to claim 1 characterized by having the gain control to which the aforementioned safeguard adjusts the aforementioned network loop gain in single or multiple wavelength.

[Claim 4] The network according to claim 1 characterized by using an access node control algorithm in order for the aforementioned safeguard to control the aforementioned network loop gain in single or multiple wavelength.

[Claim 5] The network according to claim 2 characterized by the aforementioned intact portion of the aforementioned transmission band containing the single or multiple intact channel which is not used in the network now.

[Claim 6] The network according to claim 1 where the aforementioned safeguard is characterized by protecting from the laser oscillation in the amplification spontaneous emission of the aforementioned intact portion of the aforementioned transmission band.

[Claim 7] The network according to claim 1 characterized by at least one of two or more node meanses by which connection was made [ aforementioned ] having the single or multiple optical circuit chosen from the group which includes addition/removal circuit and a cross connection circuit at least.

[Claim 8] The network according to claim 1 characterized by at least one of node meanses by which aforementioned plurality was connected having the means which carries out routing of the wavelength channel according to the wavelength.

[Claim 9] The network according to claim 8 characterized by for the aforementioned safeguard having the single or multiple exchange element, and the exchange element concerned controlling connection of the intact wavelength of the aforementioned routing means respectively.

[Claim 10] The network according to claim 9 characterized by answering the control signal with which, the aforementioned single or two or more exchange elements control the aforementioned exchangeable connection.

[Claim 11] The network according to claim 1 characterized by the aforementioned safeguard having a

single or multiple notch filter.

[Claim 12] The network according to claim 11 where each of the aforementioned single or two or more notch filters is characterized by reducing some optical transmissions of the aforementioned intact portion of the aforementioned transmission band.

[Claim 13] The network according to claim 1 characterized by each of the aforementioned node link having a respectively peculiar safeguard.

[Claim 14] The wavelength division multiplex-ized ring-network stabilization method characterized by providing the following. The step to which the method concerned removes a single or multiple wavelength channel from an addition or there to the transmission band of the (A) aforementioned network in the method of stabilizing the optical transmission in a wavelength division multiplex-ized ring network and (B) -- the step to which this addition / step to remove is answered, and the aforementioned network loop gain changes the optical-transmission property of the aforementioned network also in which wavelength in order to guarantee that it is always smaller than the aforementioned network loop loss

[Claim 15] The method according to claim 14 that the aforementioned step which carries out change is characterized by changing the aforementioned optical transmission of the intact portion of the aforementioned transmission band of the aforementioned network.

[Claim 16] The method according to claim 15 characterized by reducing the aforementioned optical transmission of the intact portion of the aforementioned transmission band when an activity wavelength channel single [ the aforementioned step which carries out change ], or multiple is removed.

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[Translation done.]